or more components, modules, and/or systems may share some/all of their respective hardware and/or software. Further, it is understood that some of the functionality discussed herein may not be implemented or additional functionality may be included as part of computer system **20**.

[0021] When computer system **20** comprises multiple computing devices, each computing device can have only a portion of management program **30** fixed thereon (e.g., one or more modules **32**). However, it is understood that computer system **20** and management program **30** are only representative of various possible equivalent computer systems that may perform a process described herein. To this extent, in other embodiments, the functionality provided by computer system **20** and management program **30** can be at least partially implemented by one or more computing devices that include any combination of general and/or specific purpose hardware with or without program code. In each embodiment, the hardware and program code, if included, can be created using standard engineering and programming techniques, respectively.

[0022] Regardless, when computer system **20** includes multiple computing devices, the computing devices can communicate over any type of communications link. Further, while performing a process described herein, computer system **20** can communicate with one or more other computer systems, such as user **14** or third party **16**, using any type of communications link. In either case, the communications link can comprise any combination of various types of optical fiber, wired, and/or wireless links; comprise any combination of one or more types of networks; and/or utilize any combination of various types of transmission techniques and protocols.

[0023] As discussed herein, management program **30** enables computer system **20** to manage operations of a set of I/O devices **40** associated with an asset **12**. In an embodiment, some or all of the set of I/O devices **40** are included on the asset **12** and are used for acquiring data regarding the environment within which the asset **12** is located. In another embodiment, the asset **12** acquires data from a set of I/O devices **40** that are physically located apart from the asset **12**. When deployed for operations, the asset **12** can be moving, drifting, and/or secured to a physical area in water, the air, space, on land, and/or the like.

[0024] The data acquired by I/O devices **40** can comprise various types of measurement data, which can vary based on the I/O device **40** and/or the corresponding application for which the I/O device **40** is being utilized. Illustrative measurement data can include: data regarding the environment in which the I/O devices **40** is located, such as temperature, wind speed/direction, atmospheric pressure, humidity, presence/level of one or more compounds or contaminants, light level, visibility level, and/or the like; data regarding a body of water, such as a depth, current speed/direction, wave height, wave period, salinity, clarity, presence/level of one or more compounds or contaminants, and/or the like; etc. I/O devices **40** can acquire measurement data using any solution, and with any frequency. For example, an I/O device **40** can acquire and/or provide a measurement in response to receiving a request from computer system **20** and/or user **14**, periodically according to a pre-defined time period, under autonomous decision making by computer system **20**, and/or the like. The measurement data acquired by an I/O device **40** can comprise analog or digital data. Additionally, a group of I/O devices **40** can be configured to acquire the measurement data in serial, in parallel, synchronously, asynchronously, and/or the like. Regardless, computer system **20** can store data corresponding to the measurement data acquired by I/O device(s) **40** as management data **34**.

[0025] An asset **12** also can include a location-sensing I/O device **40**, which can acquire data on the location of the asset **12**. In an embodiment, the location-sensing I/O device **40** comprises a global positioning system (GPS) communications device, or similar device. The location-sensing I/O device **40** can acquire two- or three-dimensional location data, which can be processed by computer system **20** to ensure that the asset **12** remains within the desired deployment area and/or to provide for processing by another system.

[0026] The set of I/O devices **40** can include one or more of various types of devices for communicating information to and/or receiving information from one or more users **14** and/or third parties **16**. For example, the set of I/O devices **40** can include one or more signaling devices, such as a light (e.g., a beacon, strobe, and/or the like), a horn, and/or the like, which can signal to local third parties **16** (e.g., vessels or vehicles) the presence or state of the asset **12**. The set of I/O devices **40** also can include one or more of various types of communications devices for transmitting data to and/or receiving data from a user **14** (e.g., the owner/operator of the asset **12**) and/or one or more third parties **16**. For example, the asset **12** can include a communications device, such as a wireless communications device, for communicating some or all of management data **34** (e.g., measurement data) for use by the user **14** and/or third party **16**, receive modifications to management data **34** (e.g., adjustments to one or more settings for the operation of the asset **12**), receive measurement data from an external data source (e.g., a syndicated data feed), and/or the like, during normal operation of the asset **12**. The communications can occur periodically according to a defined schedule, in response to a query received from the user **14**, under autonomous decision making by computer system **20**, and/or the like.

[0027] Additionally, the set of I/O devices **40** can include communications device(s) configured to communicate an error status to the user **14** and/or one or more third parties **16**. For example, the same communications device utilized during normal operation can be utilized to transmit an error status to the user **14**. When the error status increases a risk to one or more other entities (e.g., vehicles, fixed assets, animals, humans, etc.), the asset **12** can communicate data regarding the error status to one or more third parties **16**. For example, in a marine application, the computer system **20** can communicate information regarding the asset **12** to local marine traffic using a medium frequency (MF) radio, high frequency (HF) radio, a Global Maritime Distress and Safety System (GMDSS) device, and/or the like.

[0028] Asset **12** also can include a power system **42**, which is configured to provide all power for operating devices on the asset **12**. Implementation of the power system **42** can vary based on a particular application for which asset **12** is being utilized. In an embodiment, the power system **42** is configured to provide all of the power independent of any external power source (e.g., a power grid). For example, for a deployment for a fixed time period, the power system **42** can comprise a set of batteries capable of providing enough power to operate the various components of the asset **12** for the expected deployment time period. However, for an extended/indefinite period of operation, power system **42** can comprise one or more components configured to generate power from